PRACTICE OBSERVED

GP Research: Inside Stories

From brainwave to breakfast television

NORMAN BEALE

In the autumn of last year Dr Norman Beale, an "ordinary general practitioner" from Calne, Wiltshire, published a paper on unemployment and health in the Journal of the Royal College of General Practitioners *that caused both academic and media excitement. More papers are expected, and we asked Dr Beale to tell us how he began on this important project.*

The idea came to me abruptly. I don't know why it happened or how. I can remember precisely where and approximately when; I was giving the lawn its first haircut in spring 1983. Several hundred of our patients had suddenly lost their jobs when the town's main employer, C & T Harris, had closed. Might this be affecting our practice workload? In seven years I must have driven past the factory some five thousand times—several hundred more since the gates had been locked. Why had I not realised the possible consequence of closure before? Again, I didn't know and at first I didn't much care. Did anyone care? I knew nothing of the health and unemployment debate and felt no impulsion to sort in. Why get involved in research when I didn't need more demands on my time: why chase Alice down the rabbit hole?

In Cambridge I had been allowed the ultimate privilege of a British science education. The master of my college had won a Nobel prize for his work on the DNA formula and another don had just completed the amino acid sequence of human myoglobin. Neither had taught me in the formal sense, but I had glimpsed into their world to see men with foibles and prejudices like the rest of us. They were human but, more important, they were having fun. I remembered with pleasure the research project I had done for a year after second MB: I had learned to use a library to advantage, to define aims, to shuffle index cards, to tabulate results, and to file references. I was familiar with the infrastructure of science at least.

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The importance of luck

Conception, as always, was recognised only in retrospect. I was hooked: how many workers had been made redundant and who were they? The first measure from the essential bottle of luck was that the Harris personnel department was still extant and able to give me the names of the 302 workers with the company when it had shut. I tinkered with a "pilot" project and looked at the case notes of 50 men who were registered with the practice. For the first time in 15 years I began to read scientific papers properly. The conviction that similar research must have been done before slowly changed into a realisation that the subject was ripe for study—another 5 ml of luck. By intuition: more luck. I counted consultations for each of the five years before redundancy for the 50 men and, by now, for one year after. I began to think of including women employees and families and of constructing a separate control group. Reading had also fashioned idea into hypothesis: that redundancy was a stressful life event that was likely to be reflected in an increase in indices of morbidity—I was now also imbued with the jargon. In June I read John Howie's book under canvas in France.[1] So far all this had been intensely private. I even thought I might be mocked for pretending to be above my station.

In August I "came out" and discussed the project with the local postgraduate advisor in general practice. Rav was critical of my woolly thinking and dented my pride. But he was right: I had not even identified the 50 men with certainty. I now backpedalled for several months, but I suppose I've always been stubborn. At anniversary time I got going again. I needed more information from Harris's and in March 1984 tracked down the relevant filing cabinets, in Ipswich. I began to approach other industry in Calne to find control employees still in work: none demurred—more good luck.

Creativity is close to madness it is said. I could not have survived the next year without a demonic mania that had developed. I now had an obsession. I was riding my luck like the most hardbitten gambler. Middle watch followed dog watch followed middle watch. I had to rifle through the record envelopes of over 500 patients counting consultations, episodes, outpatient referrals, and attendances over eight years. Some files were wafer thin: bless them: but others two inches thick and girdled by rubber bands. The gnawing ache of such tedium is not easily forgotten. I am not sure that I could do it again. Now I began to be naughty. I craved for results and repeatedly compiled data from incomplete samples. Even the completed counts, however, didn't support my hunch. I could elicit no apparent change in morbidity in relation to job loss: months of work and nothing to show for it.

"Sick-as-hell anaemia", patients constantly remind us that we communicate poorly but do we read our own minds any better? I suddenly understood the importance of something I had known for four years: there had been, then, earlier redundancies from the factory. Our present cleaning lady was one of those who had been laid off. Did morbidity change with the threat of job loss two years before factory closure? Yes, it did. But could I prove it? Were the changes significant? I was drowning in data now, and it was my wife who threw me a lifeline. She had met socially Susan Nethercott, a medical statistician out of office while nurturing a young family. She was promptly enlisted, and with enormous relief I handed her the numbers to crunch. The rest of the reality was now a short box full of reprints, a deck of index cards, and a small financial loss. To the dismay of my family they came on holiday with us to Scotland.

In August I first heard of the Joint Working Party on Unemployment and Health of the Royal College of Psychiatrists and the Royal College of General Practitioners and of their statistical adviser, Ian Russell. I met Ian in October and proudly showed him our results so far: that there were significant increases in the variances after 1980 (we had already cracked a bottle). He was very gentle. He "thought" we "might" have used "other than the most appropriate" statistical ploy. This was not just backpedalling—the chain was off! I had even obtained a grant from the Scientific Foundation Board of the Royal College of General Practitioners (which I might not now need). Using the "better" technique we had to aggregate data—first two year and then four year clusters. It was all with Susan now.

I remember all the other events of that day too, the day that Susan phoned with new significant results—it was 8 November.

Writing it up was like doing a jigsaw that had no straight edges and rogue pieces from other puzzles. At one stage, of the 1700 words allowed, I found I had written an introduction of 1600. Eventually we submitted the paper to the *Journal of the Royal College of General Practitioners* in April 1985 after a two year gestation. We knew nothing of editorial policy, of distribution, or of circulation figures. We simply felt that this journal was the appropriate midwife for a paper in and about general practice, but our consuming worry was that it was all lego and that a referee would find massing bricks. If birth was the acceptance of the paper in July and a time for celebration then the christening came in November—a nosy affair.

The phone rang at 10.15 and never stopped ringing all day. A request to be in London at six the next morning for TV-AM gave me tenesmus. After countless interviews I was glad to escape to the metropolis. At least there would be no phone on the train. One sound recordist told me that he had just invited my wife to take our puppy for a walk "in case she barks." We like to think he meant the dog. Several other engineers took the phone off the hook. "Good Morning Britain" was a surreal interlude after a sleepless night. Back in Calne at 11 am it started again. At 7 pm the whole family fled to London to the Lord Mayor's Show. After the weekend "Auntie" came, but, more important, Susan had found more significant results, the hub of another paper. To the addict the fix is everything.

My superinflated ego—oh, don't worry. The media have a way of dealing with these. As I was disconnected from the microphone at the end of my breakfast TV chat I saw the studio manager bring in the next guest—a life sized Rupert Bear.

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Practice Research

The "five minute" consultation: effect of time constraint on clinical content and patient satisfaction

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Abstract

An experiment was carried out in which patients who were seeking appointments for a consultation in a general practice in south London attended consulting sessions booked at 5, 7·5, or 10 minute intervals. The particular session that the patient attended was determined non-systematically. The clinical content of the consultation was recorded on an encounter sheet and on audiotape. At the end of each consultation patients were invited to complete a questionnaire designed to measure satisfaction with the consultation. The stress engendered in doctors carrying out surgery sessions booked at different intervals of time was also measured.

At surgery sessions booked at 5 minute intervals, compared with 7·5 and 10 minute intervals, the doctors spent less time with the patients and identified fewer problems, and the patients were less satisfied with the consultation. Blood pressure was recorded twice as often in surgery sessions that were booked at 10 minute intervals compared with those booked at 5 minute intervals. There was no evidence that patients who attended sessions booked at shorter intervals received more prescriptions, were investigated or referred more often to hospital specialists, or returned more often for further consultations within four weeks. There was no evidence that the doctors experienced more stress in dealing with consultations that were booked at 5 minute intervals than at consultations booked at 7·5 and 10 minute intervals, though they complained of shortage of time more often in surgery sessions that were booked at shorter intervals.

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Introduction

The role of the general practitioner includes evaluating new symptoms of illness, providing continuing care for chronic disease, prevention, and health education.[1] Much of this work is undertaken in the doctor's consulting room, and it might be argued that if more time was available the general practitioner would accomplish these tasks more completely. The average consultation time in British general practice has been reported as 5·5[2] and 6·6 minutes.[3] Published studies suggest that several factors affect the duration of consultations.[4] These include the age and social class of the patient, the presenting problem, and whether the consultation is concerned with a new problem or is a follow up consultation.

Surprisingly little has been written about the effect of consultation time on the content of the consultation. One study that compared two practices which booked appointments at different rates showed that consultations that were booked at more frequent intervals were associated with more patients receiving prescriptions, more patients being asked to return for a further appointment, and more patients requesting a new appointment in the ensuing four weeks.[5] These results, however, were not supported by a study in which patients were randomly allocated to consultations of different durations.[6] In a study of patient satisfaction in relation to the duration of the consultation it was reported that patients were less satisfied and had more difficulty in communicating with doctors in short consultations.[7]

This study was designed to measure a variety of variables in relation to consultations booked at different intervals of time and to test the following hypotheses. At surgery sessions that are booked at 5 minute intervals compared with surgeries that are booked at 7·5 and 10 minute intervals the following differences would be recorded: (1) Doctors would spend less time with the patients. (2) Fewer patients would be examined, and the examination would be more restricted. (3) More prescriptions would be issued, more investigations carried out, and more patients would be referred to hospital or other health workers. (4) More patients would be asked to return for a second consultation or would initiate a second consultation within four weeks. (5) Fewer problems and fewer psychological problems would be recorded. (6) The doctors would exhibit greater stress in the consultation session. (7) The patients would be less satisfied with the consultation.

Method

The study was carried out in the Lambeth Road Group Practice in south London in which five principals provide care for about 9000 patients.

EXPERIMENTAL SURGERY SESSIONS

Over 12 weeks each principal booked three two hour experimental surgeries at 5 minute intervals, four at 7·5 minute intervals, and five at 10 minute intervals. A total of 60 experimental surgeries were conducted, and a method was devised to ensure that equal numbers of the different types of surgeries took place in the morning and the evening and on the five working days of the week. The experimental surgeries were identified in the appointment book, but the practice receptionists were instructed to book patients into these surgeries in the same way as they booked normal surgeries, with the exception that patients were booked sequentially from the beginning to the end of the surgery session to avoid gaps in the bookings.

At the start of each session the doctor was fitted with a cardiac monitor to record his heart rate throughout the session. He was also asked to mark on a rating scale (see appendix) his feelings of stress at the start of the session. Patients who attended these experimental sessions were welcomed by the practice manager, who asked them to give written consent to the consultation being audiotaped. Data were collected by means of the audiotapes and by the doctor completing an encounter sheet for each patient who attended. The tapes were used to measure the time elapsed between the patient entering and leaving the consulting room. Data were also extracted from the tapes to record referrals to hospital specialists or other health workers, the use of laboratory and radiology services, and whether or not the patient was asked to make another appointment within four weeks. A detailed analysis of the verbal content of the tapes was made and will be reported.[7]

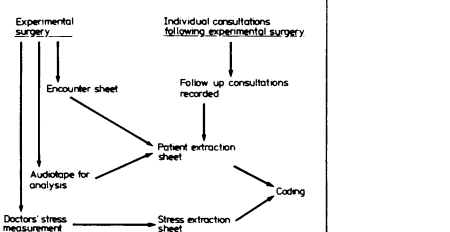
The encounter sheet included the patient's name, the type of consultation (initiated by patient or doctor), examinations carried out during the consultation, prescriptions issued for antibiotics and psychotropic drugs, and a subjective statement by the doctor of whether or not he had sufficient time for the consultation. Midway through the consultation the doctor recorded his feelings about the consultation on the rating scale and repeated this at the end of the session.

In the experimental sessions the doctors completed the usual medical records in which they recorded the problems that were identified at that consultation and the drugs prescribed. At the end of each consultation the patient was invited by the practice manager to complete a questionnaire that was designed to measure satisfaction with the consultation.

ANALYSIS OF DATA

After each consulting session the audiotape, the encounter sheet, the doctor's stress rating scales and cardiac monitor, the patients' answers to the satisfaction questionnaire, and all the patients' records were passed to the research administrator. The audiotapes were analysed according to a protocol which was developed over several weeks and designed to reduce observer variation to a minimum. The information on the audiotape was extracted by one observer, but 6% of all tapes were checked by a second observer.

In testing the hypotheses the outcome variables, which in most cases were binary, were expressed as percentages. The percentage response in respect of different variables was compared between the sessions booked at different intervals of time. To test for the tendency for a particular response to increase or decrease consistently in the sessions booked at 5, 7·5, and 10 minutes logistic regression analyses were carried out. In these allowance was made for any effect of the age and sex of the patient. As some events appeared to be related to whether or not the consultation was initiated by the patient or the doctor these trends were tested separately and are reported where this relation was detected. The figure shows how data were collected and handled.



Collection and handling of data

Results

Data were collected from 780 consultations. 275 consultations booked at 5 minute intervals, 262 booked at 7·5 minutes, and 243 booked at 10 minutes. Sixteen per cent of patients would not consent to audiotaping and 4% of the tapes were inaudible or incomplete. In these cases the data available for analysis was that recorded on the encounter sheet, the patients' records, and the doctor and patient questionnaires.

TIME SPENT WITH PATIENT

Table I gives the results of the analysis of the duration of face to face consultation between doctor and patient as measured on the audiotapes. Of the 780 patients, 623 provided complete tapes of consultations. The range of times spent with the patients varied from less than 1·5 minutes to over 20 minutes for all three types of surgery session. The median time spent with each patient increased as the booking rate reduced. In the sessions booked at 5 minute intervals the median time spent with each patient was 5·2 minutes. In the surgeries booked at 7·5 and 10 minute intervals, the median consultation times were 6·7 and 7·4 minutes. Consultations that were initiated by the patient took longer than those initiated by the doctor in the three types of surgery, particularly in sessions booked at 5 minute intervals, where more patient initiated consultations occurred (table I).

EXAMINATION OF PATIENTS

The examination that was carried out at consultations was recorded in respect of eight systems of the body and whether or not a rectal or vaginal examination was carried out and whether the blood pressure was recorded (table II). At least one system was examined at 66% of consultations. The

TABLE I—*The median and range of times recorded on audiotape for consultations booked at 5, 7·5, and 10 minute intervals*

Booking rate (min)	No of consultations	Consultation time: Median (min)	Consultation time: Range (min)
Doctor initiated			
5	65	4·1	0·7-15·6
7·5	96	6·4	1·6-19·5
10	88	7·0	1·7-29·9
Patient initiated			
5	155	5·5	1·5-20·9
7·5	117	6·7	1·4-21·3
10	102	7·9	1·0-19·8

relation between examinations carried out and booking times varied between patient initiated and doctor initiated consultations. At patient initiated consultations more examinations were carried out at the sessions booked at shorter intervals: 77% in 5 minute sessions, 76% in 7·5 minutes, and 69% in 10 minutes, and at doctor initiated consultations 41% in 5 minute sessions, 55% in 7·5 minutes, and 63% in 10 minutes (significance of trend $<0·01$).

TABLE II—*Percentage of consultations booked at different intervals of time at which examinations took place, for doctor and patient initiated consultations*

Examination carried out	Doctor initiated: 5 min	Doctor initiated: 7·5 min	Doctor initiated: 10 min	Patient initiated: 5 min	Patient initiated: 7·5 min	Patient initiated: 10 min
Any examination	41	55	63	77	76	69
Ear, nose, and throat	5	6	9	22	12	10
Chest	8	7	11	16	16	15
Cardiovascular system	1	3	4	5	6	5
Blood pressure	18	27	29	7	8	12
Abdomen	1	3	5	12	8	9
Vaginal*	2	10	10	5	11	7
Rectal			3	2	1	2
Joints	1	3	4	8	10	10
Skin	8	8	11	21	21	21
Nervous system				2		
Eyes		1	2	3	6	3
No of consultations	80	117	114	195	145	129
*No of consultations of women over 16 years	47	70	61	101	88	70

These differences may be explained to some extent by the way surgeries were booked. Surgery sessions that were booked at 5 minute intervals offered 24 appointments compared with 12 at the sessions booked for 10 minutes, thus providing more opportunities for patients to be booked in at the last minute. The excess of examinations at patient initiated consultations in 5 minute sessions was largely accounted for by examinations of the ear, nose, and throat and abdomen, which may reflect a large number of consultations for acute illness of the upper respiratory tract and gastrointestinal tract.

The largest difference between surgeries booked at different intervals of time was in the frequency of measurement of blood pressure. These trends were present in both doctor and patient initiated consultations. Overall, blood pressure was recorded at 10% of consultations booked at 5 minutes, at 16% of 7·5 minute sessions, and at 20% of 10 minute sessions. For women over age 16 vaginal examination took place overall at 4% of consultations booked at 5 minutes, at 11% at 7·5 minutes, and at 8% at 10 minutes.

REFERRAL, PRESCRIBING, RETURN CONSULTATIONS, AND REPORTED PROBLEMS

The results concerning the rate of referral to hospital specialists and for investigations, prescribing rates, the number of return consultations in the ensuing four weeks, and the number of problems identified at each consultation were not appreciably influenced by the type of consultation (doctor or patient initiated). Table III gives these results for all consultations combined.

There was no significant relation between referral to hospital specialists, other health professionals, or for hospital investigations and the sessions booked at different intervals of time.

Prescriptions were issued at 59% of consultations in the 5 minute sessions compared with 63% and 62% in the 7·5 and 10 minute sessions. Antibiotics were more likely to be prescribed in surgeries booked at shorter intervals (15%, 10%, 11% in the 5, 7·5, and 10 minute sessions). Although antibiotics were prescribed more often in sessions booked at 5 minute intervals, this was not accounted for by the higher proportion of patient initiated consultations which took place at these sessions. Psychotropic drugs were slightly more likely to be prescribed in sessions booked at longer intervals.

TABLE III—*Events recorded per 100 consultations*

Events recorded per 100 consultations	Consultations booked at: 5 min	7·5 min	10 min
Referral to specialist	8	9	10
Referral to other health worker	4	5	6
Hospital investigation	9	10	10
Prescription issued	59	63	62
Antibiotic prescribed	15	10	11
Psychotropic drug prescribed	6	9	9
Return consultation booked	16	12	18
Two or more problems recorded	11	16	22
A psychological problem recorded	9	14	12

There was no significant trend in the proportion of patients being asked to make an appointment for a return visit in the different types of surgery session, and there was no difference in the proportion of patients seen in the three types of session consulting again over the following four weeks.

Doctors were significantly more likely to report two or more problems in surgeries booked at longer intervals ($p<0·01$), and they were more likely to record psychological problems in the surgeries booked at longer intervals. The consultations in which a psychological problem was recorded actually took a mean of 3·9 minutes longer than other consultations, independent of the booking rate of the surgery.

DOCTORS' STRESS

The doctors recorded that they had insufficient time for the patient's problem more often in the sessions booked at short intervals (28%, 6%, 2% at sessions booked at 5, 7·5, and 10 minutes; test for trend $p<0·001$). There were no consistent differences between the responses of the doctors to the rating scales in the three types of surgery. Both the scores on the rating scales and mean heart rate tended to be least for the 7·5 minute sessions and greatest for the 5 minute sessions (table IV).

TABLE IV—*Mean (SE) scores on stress rating scales and mean (SE) pulse rate recorded at consultation sessions*

Stress measurement	Consultations booked at: 5 min	7·5 min	10 min
Stress score	11·0 (0·8)	9·8 (0·5)	10·6 (0·7)
Pulse rate	72·4 (4·2)	70·3 (3·5)	70·5 (3·4)

PATIENT SATISFACTION

Patients were more likely to complain of shortage of time in the sessions booked at shorter intervals (table V). Patients who had been seen in the sessions booked at longer intervals were more likely to state that they had felt "very free" to discuss their problem with the doctor. Among those saying that they needed information about their condition a higher proportion said that they were very satisfied with the information given in the sessions booked at longer intervals (90%, 91%, 93% in the 5, 7·5, and 10 minute sessions). Likewise, among patients receiving prescriptions those who were seen in sessions booked at longer intervals were more likely to say that they had received enough information about their treatment (92%, 96%, 97% in 5, 7·5, and 10 minute sessions). Though in each case the trend was in favour of sessions booked at longer intervals of time, it was not significant. This probably reflects the sample size in terms of the numerical differences recorded.

TABLE V—*Percentage response to questions in the "satisfaction" questionnaire in relation to surgery sessions booked at 5, 7·5, and 10 minutes (Number of patients answering question in parentheses)*

Responses to satisfaction questionnaire	Booked rate		
	5 min	7·5 min	10 min
Little or far too little time available	3·7 (245)	1·8 (224)	0·5 (208)
Felt "very free" to discuss problems	67·2 (238)	74·9 (219)	78·7 (207)
"Very satisfied" with information received about condition (of those who said that they needed information)	89·6 (134)	90·6 (128)	93·3 (134)
Received enough information about management (of those who were given a prescription)	91·6 (143)	96·0 (124)	97·2 (107)

Discussion

In interpreting the results of this study it is important to bear in mind its limitations. The doctors who took part in this experiment normally book patients at the rate of nine patients an hour (6·7 minutes per patient). This is supposed to cover not just the time spent face to face with the patient but also time taken to complete records, request forms, collect and dispose of instruments and specimens, and call new patients from the waitingroom. The times recorded in the study represent face to face consultation time and were derived from the audiotapes.

In preparing for the study doctors intentionally avoided discussing how they would use the extra time made available by longer consultations. The changes which were recorded in the content of the consultations therefore depended on each doctor's response to the available time. The doctors were not constrained to work within the time allotted for each patient, but they were under the indirect pressure of knowing that if they did not the waiting room would fill rapidly.

In designing this study it was hoped that patients who sought an appointment in the experimental surgeries would be equally likely to attend sessions booked at five minute intervals as at longer intervals. There is evidence, however, that more availability of appointments in the five minute sessions resulted in more patients with acute illness booking into these sessions at the last minute than into the other sessions. The sample size was calculated to show differences of 10% in the rate of events which occur at approximately 60% of surgery consultations. Thus the sample available was not sufficiently large to show significant differences in some events which rarely occur.

The study was designed to test seven hypotheses. Three of these were supported by the data collected. At sessions booked at 5 minute intervals the doctors spent less time with the patients, fewer problems and fewer psychological problems were identified, and patients were less satisfied with the consultation. Three hypotheses were not supported by the data collected. There was no evidence that patients who were booked at 5 minute intervals received more prescriptions, or were investigated or referred more frequently, or that they returned for further consultations within four weeks more frequently. There was no evidence that sessions booked at 5 minute intervals were associated with greater stress in the doctor.

The results as regards the physical examination of patients were less clear cut. At sessions booked at 5 minute intervals some systems were examined more frequently at patient initiated consultations, but this may be explained by the greater availability of appointments at these sessions which may have resulted in more acute upper respiratory illness being presented. This is borne out to some extent by the finding that more of the examinations conducted were of the ear, nose, and throat. Conversely, at doctor initiated consultations more examinations took place at the sessions booked at 7·5 and 10 minute intervals. It is apparent that measurements of blood pressure and vaginal examinations, which might be regarded as a proxy for cervical cytology, were much more likely to take place at sessions booked at 7·5 and 10 minute intervals.

What clearly emerges from this study is that describing the mean consultation time obscures wide variations in the actual time that doctors spend with patients (0·7 to 29·9 minutes). It is also clear that the doctors in this study could not cope with consultations booked at 5 minute intervals, spending a median time of 5·2 minutes face to face with patients, to which must be added time to complete records, time for patients to be called from the waitingroom, time for handling specimens and instruments, and so on. When invited to comment at the end of each consultation on whether they had adequate time the doctors complained of inadequate time at about one quarter of the consultations booked at 5 minute intervals compared with 6% of those booked at 7·5 minute intervals.

In the past the "five minute" consultation has been held responsible for patients being inadequately examined, too many being referred to hospital, and too many drugs being prescribed. The data collected in this study indicate that the five minute consultation can stand up to this criticism, but such a consultation between patient and doctor appears to reduce the probability that the doctor will identify all the patient's problems or undertake preventive examinations. It is also clear that the doctors in this practice, working under the constraint of five minute bookings, were always working behind the clock and had no spare time for good record keeping. Some aspects of modern general practitioner care are therefore likely to suffer if consultations are booked at too frequent intervals, and there is some evidence from this study that booking consultations at longer intervals will lead to better care and greater patient satisfaction.

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Appendix

Time study sheet record

Doctor: Date:
Before/After: am/pm: Type of Surgery:

Below is a list of words that describe feelings people have. Before you start the surgery, please tick one line beside each of the words which best describes your feelings.

	Not at all	A little	Moderately	Quite a bit	Extremely
Tense					
Energetic					
Rebellious					
Tired					
Considerate					

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The "five minute" consultation: effect of time constraint on verbal communication

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Abstract

In a study in which patients were allocated non-systematically to surgeries booked at 5, 7·5, and 10 minute intervals 623 consultations were tape-recorded. In surgeries booked at longer intervals doctors used the extra time to take a fuller history from their patients. In surgeries booked at 10 minute intervals doctors spent more time explaining the patient's problem, explaining the proposed management, and in discussing prevention and health education, these increases not being evident in surgeries booked at 7·5 minute intervals.

Introduction

Effective communication is an important part of the development of a successful relationship between a doctor and a patient. Poor interviewing technique may lead to the doctor failing to appreciate the patient's problems, the patient failing to understand instructions and comply with treatment,[1] and reduced patient satisfaction.[2] Specific training in interviewing skills is becoming part of training for general practice.[3]

An improvement in interviewing technique may, however, require spending more time with the patient. Verby *et al*[4] showed a substantial improvement in interviewing technique in a group of Welsh doctors who undertook weekly training sessions, but the improvement occurred at the expense of a 40% increase in the duration of consultations.[5] Furthermore, they found a positive correlation between interviewing "score" and the duration of consultations for both the doctors who had received training and a control group. A doctor's ability to communicate effectively may be largely a function of the time available for the consultation.

This study was designed to investigate in experimental circumstances the relation between a variable time constraint and the verbal content of general practitioner consultations. Patients in this study were assigned arbitrarily to surgeries that were booked at 5, 7·5, or 10 minute intervals. The effect of this time constraint on clinical content and patient satisfaction is reported in the previous paper.[6] This paper reports the effect of the time constraint on the verbal content of the consultations.

Method

During the study patients who attended certain surgeries in a group practice of five partners in south London were booked at 5, 7·5, and 10 minute intervals. All "experimental" surgeries were booked for two hour periods, and surgeries were booked so that each partner would do three experimental surgeries booked at 5 minute intervals, four booked at 7·5 minute intervals, and five booked at 10 minute intervals. "Extra" or unbooked patients were not permitted to book for experimental surgeries.

On arrival at reception all patients who were booked for experimental surgeries were asked for written permission for their consultation to be audiotaped. The verbal content of the audiotaped consultations was subsequently analysed by JB. The method used to analyse verbal behaviour in the consultations was a modification of that described by Bain.[7] Using a standard rating scale (see appendix 1: the research assistant listened to the tape, marking the frequency with which the specified types of statement occurred—for example, statement by doctor explaining treatment or question asked by patient. The method used was modified slightly from that described by Bain to include aspects of the consultation that were thought likely to be affected by a time constraint. Appendix 2 gives the definitions for the rating scale and instructions to the rater.

To measure the reliability of this method of assessing the consultation three analyses were made of between-observer and within-observer variation in the rating of the tapes. In the first pilot study 10 taped consultations were rated on two separate occasions by each of three observers (MR, JB, MC). This analysis showed relatively little within-observer variation but substantial between-observer variation for some of the statements. The rating scale and the instructions for the raters were amended, and the pilot study was repeated on a further 10 consultations. In the second pilot study within-observer error remained small, and between-observer variation was improved. Only minor changes were then introduced to the rating scale which was used for the main study.

During the main study all consultations were rated by the research assistant (JB), with a random sample of 40 being rated independently (by MR). The research assistant did not know which consultations would subsequently be checked by another rater. The possibility of observer bias was assessed for each type of statement by a paired *t* test on the mean difference between the two observers. Two components of variance were calculated: firstly, the variance between the two observers' ratings for each of the subjects; and, secondly, the variance between the mean ratings of the 40 subjects.

For the main analysis the number of statements recorded in each of the 15 specified categories was compared for patients in the three different types of surgery. A test for trend in the mean number of statements among patients from 5·, 7·5, and 10 minute surgeries was carried out, assuming that the number of statements followed a Poisson distribution. It was possible to do this by using the log linear model facility in GLIM.[8]

Results

Considerable variance between observers was found for some of the types of statement. This exceeded 40% of the total variance for D2, D6, D7, D9, and P2. In the cases of D2, D6, and P1 this was due to a consistent tendency of observer 1 to record these events more often than observer 2. Since D7, D8, and D9 were rarely recorded their total variance was small, and so they were of little relevance to the main analysis. For statements D6 and P1 the results of the pilot study had shown that within-observer variance was small in relation to between-observer and between-subject variance in the way that these statements were recorded, so the observers were consistent within themselves.

When rating the consultations the observer was "blind" to the type of surgery being recorded. In view of the wide variations in duration of consultations in all surgeries it is unlikely that the rater would have been aware of the type of surgery being recorded, and thus any systematic bias seems unlikely. Such observer variation as did occur would tend to obscure true differences between the three types of surgery, and it is therefore likely that the differences found in the main study were real effects.

Of 780 patients attending experimental surgeries, 127 did not wish their consultation to be recorded. Eighteen were incompletely recorded, and 12 were inaudible on the tape. The results of the audio analysis therefore relate to the remaining 623 consultations.

The time from the beginning to the end of the consultation was measured for each taped consultation. The median time for face to face contact between the doctor and the patient was 5·2 minutes, 6·7 minutes, and 7·4 minutes in the surgeries booked at 5, 7·5, and 10 minute intervals, with consultation time ranging from less than two minutes to more than 20 minutes in all three types of surgery. The distribution of consultation times and of numbers of statements recorded in each category was very skew. The results are therefore expressed for the three types of surgery in terms of the percentage of consultations where the number of recorded statements exceeded the overall median for that statement type. Table I summarises these results. (The percentages quoted are usually less than 50% because in a substantial percentage of consultations the number of recorded statements equalled the overall median.)

TABLE I—*Percentage of consultations in which number of statements was greater than the overall median*

Statements	Overall median No of statements per consultation	Surgeries booked at: 5 min (n=220)	7·5 min (n=213)	10 min (n=190)
Statements by doctor				
Social exchange	0	30·5	31·5	37·4
Encouragement facilitation	1	47·3	47·9	55·8**
Asking question	7	42·7	49·8	57·9**
Psychosocial question	0	43·2	45·1	49·5**
Explaining problem	3	41·8	36·6	43·2*
Explaining management	6	41·8	41·8	45·8*
Positive response to psychosocial lead	0	5·6	7·5	7·9
Negative response to psychosocial lead	0	0·9	1·9	3·1
Interrupted patient	0	9·1	12·2	10·5
Prevention health education	0	14·5	16·9	22·1**
Statements by patient				
Social exchange	0	31·8	31·0	36·3
Presentation of problem	7	40·0	45·1	46·3**
Answering question	7	35·9	45·1	56·3**
Problem related expression	1	40·5	39·0	43·6
Asking question	1	36·4	36·2	39·5

*Test for trend significant p<0·025. **test for trend signifs ant p<0·001

TABLE II—*Statements on prevention health education*

No of statements on prevention health education	Percentage of consultations: Booked at 5 min (n=220)	Booked at 7·5 min (n=213)	Booked at 10 min (n=190)
0	85·5	83·1	77·9
1	12·7	14·6	17·4
>2	1·8	2·3	4·7

STATEMENTS BY DOCTOR

Social exchange (D1)—Initial greetings were excluded in the definition of social exchange, this type of statement was relatively uncommon. No social exchange was recorded in 67% of consultations, with no significant trends between the three types of surgery.

Encouragement facilitation (D2)—At surgery sessions booked at 10 minute intervals facilitation was recorded more than once in 56% of consultations, compared with 47% and 48% of consultations in sessions booked at 5 and 7·5 minute intervals.

Asking questions (D3)—There was a particularly wide range in the number of questions asked by the doctor (0-37, 1-54, 0-35 in surgeries booked at 5, 7·5, and 10 minute intervals). More than seven questions were recorded in 43%, 50%, and 58% of surgeries booked at 5, 7·5, and 10 minute intervals.

Psychosocial question (D4)—The number of psychosocial questions recorded varied widely, and as many as 30 were recorded for at least one consultation in each of the three types of surgery sessions. Overall, no psychosocial question was recorded in 54% of consultations. At least one psychosocial question was recorded in 43% of consultations booked at 5 minute intervals and in 45% and 49% of consultations booked at 7·5 and 10 minute intervals.

Statements explaining the problem (D5)—An increase in the number of statements by the doctor explaining the problem to the patient was found only for surgeries booked at 10 minute intervals. More than three statements explaining the problem were recorded in 42%, 37%, and 43% of consultations booked 5, 7·5, and 10 minute intervals. Six or more statements of this type were recorded at 18% and 19% of surgeries booked at 5 and 7·5 minute intervals, and at 24% of surgeries booked at 10 minute intervals.

Statements explaining management (D6)—As with statements explaining the problem an increase in the number of statements explaining the management that the doctor proposed was found only in surgeries booked at 10 minute intervals. More than six statements explaining management were recorded at 42% of surgeries booked at 5 and 7·5 minute intervals, and at 46% of surgeries booked at 10 minute intervals.

Prevention health education (D10)—These included statements on diet, smoking, exercise, cervical cytology, breast examination, and travel or immunisation. Overall, no statement in this category was recorded in 82% of consultations. Statements of this type were more likely to be recorded in surgeries booked at longer intervals (table II).

STATEMENTS OF THE PATIENT

Presentation of problem and answering questions (P2 and P3)—The recording of these statements was predictably related to the number of questions asked by the doctor, and they were recorded more often in the surgeries booked at longer intervals. "Presentation of problem" was recorded more than seven times in 40%, 45%, and 46% of consultations, and "answering question" recorded more than seven times in 36%, 45%, and 56% of consultations in surgeries booked at 5, 7·5, and 10 minute intervals respectively.

Asking questions (P5)—Although there were no significant differences in the number of questions asked by the patient in the three types of surgery, patients appeared less likely to ask many questions in the surgeries booked at shorter intervals. For example, five questions or more were asked in 3% of surgeries booked at 5 minute intervals compared with 8% of surgeries booked at 7·5 and 10 minute intervals.

Discussion

In this study substantial efforts were made to minimise within-observer and between-observer variation in the analysis of the audiotapes. It was possible to achieve a high degree of within-observer consistency. Since one observer analysed all the tapes in the study we believe that the differences reported between consultations booked at different intervals of time are reliable.

In interpreting the results the time constraint under which the doctors were operating needs to be considered. In surgeries booked at 5 minute intervals the median time face to face with patients was 5·2 minutes—so the doctors were inevitably always running late. The median face to face time in the 7·5 minute surgeries was 6·7 minutes, leaving an average of 50 seconds for writing notes, etc. In the surgeries booked at 10 minute intervals the doctors were under much less pressure of time.

There was a general trend for more statements of all types to be recorded in surgeries booked at longer intervals. The largest differences were in statements relating to history taking by the doctor (facilitation, asking questions, asking psychosocial questions) and in the patient's response (presentation of problem, answering questions).

We have shown in a previous paper that there is little difference in the numbers of patients examined, investigated, or referred to hospital in surgery sessions booked at different time intervals.[6] The results of this analysis indicate that the doctors used the time available in surgeries that were booked at longer intervals to spend more time talking and listening to their patients. The increased time spent talking with patients in less heavily booked surgeries is likely to be related to our previously reported results of more problems being detected by the doctors in these surgeries and greater satisfaction on the part of the patients.

For some variables the most marked change was noted in surgeries booked at 10 minute intervals. These included statements by the doctor explaining the patient's problem, statements explaining management, and statements on prevention and health education. In surgeries booked at 7·5 minute intervals doctors were still working under considerable pressure of time, and little extra time was devoted to these important aspects of the consultation. A change in the booking rate to 10 minutes seemed necessary to produce appreciable changes in the frequency with which these statements were recorded. Despite this only a small proportion of the total time was spent on giving information to the patient and on health education.

Doctors are being encouraged more and more to expand their roles in prevention and health education. The results of this study show that the general practitioners did not fulfil these roles when working under severe time constraints. When more time was made available better communication occurred between doctors and patients. This analysis of the verbal content of consultations that were booked at different intervals of time supports the conclusion reached in our preceding paper that some aspects of modern general practitioner care are likely to suffer if consultations are booked at too frequent intervals.

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Appendix 1

Consultation rating scale

Doctor
D1 Social exchange
D2 Encouragement or facilitation
D3 Asking question
D4 Psychosocial question or lead
D5 Statements explaining problem
D6 Statements explaining management
D7 Positive verbal response to psychosocial lead
D8 Negative verbal response to psychosocial lead
D9 Interrupted patient
D10 Prevention health education

Patient
P1 Social exchange
P2 Presentation of problem
P3 Answering question
P4 Problem related expression
P5 Asking question

Appendix 2

Instructions to rater on scoring consultations

As you listen to the tape put a tick in the appropriate space each time one of the events D1 to D10 or P1 to P5 occurs. At the end of the consultation add up the scores for individual types of behaviour.

General points

Sometimes questions or symptoms may occur in groups. On the whole (unless different complaints or questions. However, when more than one symptom or question is delivered in one breath' this may be scored as one point only if the symptoms or questions are clearly related.

The following behaviours relate to non-biomedical items on the rating scale.

1 *Facilitation* by doctor is a process whereby he makes it easy for the patient to continue what he is saying, or expand on his theme, by giving the patient minimal encouragement. This may include such things as saying 'Ah ha' or 'Please go on.' A short period of silence may also be used by the doctor to indicate to the patient that he expects him to continue, and this may be counted as facilitation. Grunts are counted as facilitation, but grouped grunts count as one grunt.

2 *Statements about problem and management* include all statements, even straight repetitions.

3 *Psychosocial leads*: Doctors who view their patient's problems in the widest sense are said to be viewing the patient as a whole rather than simply examining the particular problem they have brought to the consulting room. The psychosocial area to be considered here includes psychological factors, behaviour patterns, thoughts, feelings, and attitudes and social factors (relationships, social circumstances, home background, work etc). Enquiring into these areas in thought to be desirable interviewing behaviour for doctors. The patient may be hesitant about disclosing psychosocial problems, and the doctor needs to be sensitive to possible psychosocial leads.

4 *Questions psychosocial questions*: If a question is asked on a lead given by the doctor specifically about a psychosocial area, tick D4. For any other question, tick D3.

5 *Problem related expressions* include statements such as 'I don't know how to tell the family about this', or 'I am worried about losing time from work.' These statements will usually be subclears to the main problems which are scored P2.

6 *Health education prevention*: Only score statements about the following:
a advice on diet
b advice on smoking
c advice on travel or immunisation
d advice on general physical exercise
e discussing or doing a cervical smear
f discussion of breast examination

100 YEARS AGO

A good deal of sensation has been excited in Milan, by the lectures and experiments of a certain Signor Donato, an admittedly assumed name, who has been reproducing the ordinary phenomena of mesmerism amongst the susceptible citizens of the capital of Lombardy. It would have been quite unnecessary to draw the attention of the readers of these columns to the well-known results of expectant attention and unconscious reception of suggested ideas which are so familiar to the profession in our country, and in Germany, were it not for the purpose of showing that the Italian authorities have the power, apparently, of putting a legal veto on all such proceedings, if they are pronounced injurious to the subjects of the experiments by medical or scientific experts whom the authorities consult. The Prefect did thus put an end to the performances of Donato, on the passing of a motion by the Medical Society of Milan, that the experiments were injurious to the nervous systems of those who submitted to them, and referred the matter to the central authority at Rome, who consulted the Upper Sanitary Council of the Kingdom. Baccelli, the President of the Council, having requested and obtained permission to summon some of the leading Italian physiologists and psychologists to the assistance of the sanitary members, a meeting has taken place, and a resolution has been passed to the effect that, for the protection of the liberty of every person, it is essential to prevent experiments which, while abolishing the consciousness of actions, produce morbid physical effects on predisposed persons, and render them subject to the will of others. The Council says that public displays of hypnotism must produce great disturbance in the nervous susceptibilities of the spectators, and maintains that physiology and clinical experience offer decisive proof of this assertion. It is certain that the Government will empower the local authorities to act on this opinion, and that such experiments as Donato's will be no longer tolerated in any Italian city where the Prefect, or his representative, thinks it worth while to interfere. (*British Medical Journal* 1886;i:1225.)